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EXAMINER	
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2884	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/784,851	BERGH ET AL.	
	Examiner	Art Unit	
	Shun Lee	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33,37,41,52 and 56-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33,37,41,52 and 56-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claim 33 is objected to because of the following informalities: "wherein of" on line 15 in claim 33 should probably be --wherein--. Appropriate correction is required.

3. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 58-60 have been renumbered 57-59, respectively.

4. Claims 33 and 58 are objected to because of the following informalities:

(a) in claim 33, "wherein of" on line 15 should probably be --wherein--; and

(b) in renumbered claim 58, "claim 33" on line 1 should probably be --claim 56-- (since there is insufficient antecedent basis for "said double or triple layer coating" in renumbered claim 58).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 33, 37, 41, 52, 56-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "low" in amended claim 33 and new claim (renumbered) 59 is a relative term which renders the claim indefinite. The term "low" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. There does not appear to be any criteria disclosed that would allow one of ordinary skill in the art to determine whether a temperature is "low" or not. In addition, there does not appear to be any criteria disclosed that would allow one of ordinary skill in the art to determine whether a pressure is "low" or not.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 5, 9, 13, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873).

In regard to claims **1**, **5**, **9**, **13**, **17**, and **21**, Kano *et al.* disclose (Figs. 1 and 2) a radiation image sensor comprising:

(a) a stimulable phosphor screen (23) comprising:

(a1) a radiation-transparent substrate (11) such as plastic films, glass, or aluminum sheets (column 4, lines 51-61);

(a2) a stimulable phosphor layer (12) formed on said substrate (11), wherein said storage phosphor is a binderless needle-shaped, vapor-deposited CsBr:Eu phosphor (column 6, line 62 to column 7, line 11; column 8, line 52 to column 9, line 18);

(a3) a first transparent organic film (13a) covering said stimulable phosphor layer (12); and

(a4) a second transparent film (13b) formed on said first transparent organic film (13a), said second transparent film (13b) is a multilayer (*i.e.*, "three or more layers"; column 4, lines 1-6) polymeric film (*e.g.*, "silicone resins"; column 9, line 46 to column 11, line 50) containing compatible film-forming polymers, and

wherein said compatible film-forming polymers is urethane acrylate (*i.e.*, "urethaneacrylate"; column 10, line 21); and

(b) an imaging device (25, 26) disposed in order to face said stimulable phosphor screen (23).

The screen of Kano *et al.* lacks an explicit description that the polymeric film contains mixtures of silazane or siloxazane polymers. However, Kano *et al.* also disclose (column 10, lines 29-32) that " ... a coating liquid containing at least one of radiation curing type resin and thermosetting resin ... As the radiation curing type resin mentioned above ... there may be exemplified the followings: ... urethane modified unsaturated polyester, acrylic urethane modified unsaturated polyester, and a liquid unsaturated polyester having an acrylic group at a terminal ... siliconeacrylate and urethaneacrylate ... As the above-mentioned thermosetting resin according to this invention, there may be exemplified ... polyurethane resins, silicone resins, ... ". Since Kano *et al.* do not disclose and/or require a specific resin for the three or more layers, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified resin of Kano *et al.* as one or more of the known conventional resins that would not require further description. Further, Benz *et al.* teach a polymeric film containing mixtures of silazane (*i.e.*, "silazane"; column 3, lines 12-32) or siloxazane (*i.e.*, "alkoxy group containing ... silazane"; column 3, lines 12-32), in order to obtain a protective layer having desired properties such as good abrasion and scratching resistancy. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known polymer (*e.g.*, silazane, siloxazane, compatible film-forming polymers, or mixtures thereof) for the unspecified polymer in the screen of Kano *et al.*, in order to

obtain a protective layer having desired properties such as good abrasion and scratching resistancy.

10. Claims 2, 6, 10, 14, 18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873) as applied to claim 1 above, and further in view of Arakawa *et al.* (US 4,863,826).

In regard to claim **2** which is dependent on claim 1, the modified screen of Kano *et al.* lacks an explicit description that the subbing layer comprises a transparent organic film. However, Kano *et al.* also disclose (column 5, lines 4-7) a subbing layer between said substrate and said stimulable phosphor layer. Since Kano *et al.* do not disclose and/or require a specific subbing layer, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified subbing layer of Kano *et al.* as any one of the known conventional subbing layers which would not require further description. Further, Arakawa *et al.* teach (column 3, line 56 to column 4, line 3) that a subbing layer comprises a polymer material with optional additional light reflecting or light absorbing material, in order to obtain a organic film having desired optical properties which also enhances bonding. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known subbing layer (*e.g.*, a transparent organic film) for the unspecified subbing layer in the modified screen of Kano *et al.*, in order to obtain a layer which enhances bonding.

In regard to claim **6** which is dependent on claim 2, Kano *et al.* is applied as in claim 5 above.

In regard to claim **10** (which is dependent on claim 2) and claim **14** (which is dependent on claim 6), Kano *et al.* is applied as in claim 9 above.

In regard to claim **18** (which is dependent on claim 10) and claim **22** (which is dependent on claim 14), Kano *et al.* is applied as in claim 17 above.

11. Claims 3, 7, 11, 15, 19, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873) as applied to claim 1 above, and further in view of Homme (US 2003/0160185).

In regard to claim **3** which is dependent on claim 1, the modified screen of Kano *et al.* lacks an explicit description that the organic film is a poly-paraxylylene film. However, Kano *et al.* also disclose (column 9, line 46 to column 11, line 50) that the first transparent organic film (13a) is a polymeric film. Since Kano *et al.* do not disclose and/or require a specific polymeric film, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified polymeric film of Kano *et al.* as any one of the known conventional polymeric films which would not require further description. Further, Homme teaches (paragraph 33) that a protective layer comprises polyparaxylylene. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known polymer (*e.g.*, polyparaxylylene) for the unspecified polymer of the protective layer in the modified screen of Kano *et al.*

In regard to claim **7** which is dependent on claim 3, Kano *et al.* is applied as in claim 5 above.

In regard to claim **11** (which is dependent on claim 3) and claim **15** (which is dependent on claim 7), Kano *et al.* is applied as in claim 9 above.

In regard to claim **19** (which is dependent on claim 11) and claim **23** (which is dependent on claim 15), Kano *et al.* is applied as in claim 17 above.

12. Claims 4, 8, 12, 16, 20, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873) and Arakawa *et al.* (US 4,863,826) as applied to claim 2 above, and further in view of Homme (US 2003/0160185).

In regard to claim **4** which is dependent on claim 2, Homme is applied as in claim 3 above.

In regard to claim **8** which is dependent on claim 4, Kano *et al.* is applied as in claim 5 above.

In regard to claim **12** (which is dependent on claim 4) and claim **16** (which is dependent on claim 8), Kano *et al.* is applied as in claim 9 above.

In regard to claim **20** (which is dependent on claim 12) and claim **24** (which is dependent on claim 16), Kano *et al.* is applied as in claim 17 above.

13. Claims 25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873) as applied to claims 17 and 21 above, and further in view of Karellas (US 5,864,146).

In regard to claim **25** (which is dependent on claim 17) and claim **29** (which is dependent on claim 21), the modified sensor of Kano *et al.* lacks an explicit description that said imaging device is a CCD. However, Kano *et al.* also disclose (column 13, lines 6-14) to provide a photoelectric converting device 25 and an image producing device 26 to reproduce an image. Since Kano *et al.* do not disclose and/or require a specific

imaging device, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified imaging device of Kano *et al.* as any one of the known conventional imaging devices which would not require further description. Further, Karellas teaches (column 33, lines 9-23) to provide a CCD as the imaging device, in order to obtain more accurate resolution. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known conventional imaging device (*e.g.*, a CCD) as the unspecified imaging device in the modified sensor of Kano *et al.*, in order to obtain more accurate resolution.

14. Claims 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873) and Arakawa *et al.* (US 4,863,826) as applied to claims 18 and 22 above, and further in view of Karellas (US 5,864,146).

In regard to claim **26** (which is dependent on claim 18) and claim **30** (which is dependent on claim 22), Karellas is applied as in claim 25 above.

15. Claims 27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873) and Homme (US 2003/0160185) as applied to claims 19 and 23 above, and further in view of Karellas (US 5,864,146).

In regard to claim **27** (which is dependent on claim 19) and claim **31** (which is dependent on claim 23), Karellas is applied as in claim 25 above.

16. Claims 28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873), Arakawa *et al.*

(US 4,863,826), and Homme (US 2003/0160185) as applied to claims 20 and 24 above, and further in view of Karellas (US 5,864,146).

In regard to claim **28** (which is dependent on claim 20) and claim **32** (which is dependent on claim 24), Karellas is applied as in claim 25 above.

17. Claims 33, 37, 41, 52, and 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873) as applied to claim 1 above, and further in view of Van Havenbergh *et al.* (US 5,334,842), Homme (US 2003/0160185), and Gorham (US 3,342,754).

In regard to claims **33**, **37**, **41**, **52**, and **56-58**, Kano *et al.* disclose (Figs. 1 and 2) a method of preparing a stimulable phosphor screen or panel according to claim 1, said method comprising the steps of:

(a) forming a stimulable phosphor layer (12) on a radiation-transparent substrate (11);

(b) forming a first transparent organic film (13a) covering said stimulable phosphor layer (12) and said stimulable phosphor layer (12) comprises needle-shaped phosphor;

(c) forming a second transparent film (13b) containing compatible film-forming polymers on said first transparent organic film, wherein said second transparent film (13b) is a multilayer (*i.e.*, "three or more layers"; column 4, lines 1-6) polymeric film (*e.g.*, "silicone resins"; column 9, line 46 to column 11, line 50) containing compatible film-forming polymers (*e.g.*, "urethaneacrylate"; column 10, line 21); and

(d) forming a third transparent film layer (*i.e.*, "three or more layers"; column 4, lines 1-6) covering said second transparent film layer, wherein said third transparent film layer is another polymeric film (*e.g.*, "silicone resins"; column 9, line 46 to column 11, line 50) containing compatible film-forming polymers (*e.g.*, "urethaneacrylate"; column 10, line 21),

wherein each layer coating of said polymeric films is followed by curing and drying (*e.g.*, " ... heating ... to carry out curing of the coating liquid ... forming succesively several protective layers on the stimulable phosphor layer ... "; column 9, line 27 to column 11, line 63).

The method of Kano *et al.* lacks an explicit description that the organic, second, and third film is poly-paraxylylene or mixtures of silazane or siloxazane polymers formed by sieve printing, dip coating, bar coating, spray coating, or low temperature low pressure vaporization. However, Kano *et al.* also disclose (column 10, lines 29-32) that " ... a coating liquid containing at least one of radiation curing type resin and thermosetting resin ... As the radiation curing type resin mentioned above ... there may be exemplified the followings: ... urethane modified unsaturated polyester, acrylic urethane modified unsaturated polyester, and a liquid unsaturated polyester having an acrylic group at a terminal ... siliconeacrylate and urethaneacrylate ... As the above-mentioned thermosetting resin according to this invention, there may be exemplified ... polyurethane resins, silicone resins, ... ". Since Kano *et al.* do not disclose and/or require a specific resin for the three or more layers formed by a specific technique, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified resin of Kano *et al.* as one or more of the known conventional resins conventionally formed that

would not require further description. Further, Benz *et al.* teach a polymeric film containing siloxazane (*i.e.*, "alkoxy group containing ... silazane"; column 3, lines 12-32), in order to obtain a protective layer having desired properties such as good abrasion and scratching resistancy. In addition, Van Havenbergh *et al.* teach (column 20, lines 51-59) that coating methods include dip coating, air-knife coating, roll coating, extrusion coating, bead coating, curtain coating, screen printing coating, wire bar coating, etc. Additionally, Homme teaches (paragraphs 33 and 36) that a protective layer comprises polyparaxylylene formed by CVD. Gorham teaches (column 2, lines 39-69) that polyparaxylylene is formed by CVD at low temperatures (*e.g.*, condensation temperature of <200°C after heating to 450~700°C) and low pressures (*e.g.*, <1.0 mm Hg). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide known polymers (*e.g.*, polyparaxylylene, silazane, and/or siloxazane formed by CVD) for the unspecified polymers in the method of Kano *et al.*, in order to obtain a composite protective layer (comprising three or more layers) having desired properties such as good abrasion and scratching resistancy.

18. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kano *et al.* (US 4,741,993) in view of Benz *et al.* (US 4,830,873, Van Havenbergh *et al.* (US 5,334,842), Homme (US 2003/0160185), and Gorham (US 3,342,754).

In regard to claim **59**, Kano *et al.* in view of Benz *et al.*, Van Havenbergh *et al.*, Homme, and Gorham is applied as in claims 33 and 56 above.

Response to Arguments

19. Applicant's arguments filed 18 May 2007 have been fully considered but they are not persuasive.

Applicant argues (first paragraph on pg. 11 to second paragraph on pg. 12 of remarks filed 18 May 2007) that one of skill in the art would have no basis for considering the use of multiple layers to avoid the unforeseen problem of cracking and irregularity in the coating during curing. In response to applicant's argument, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In this case, Kano *et al.* state (column 4, lines 1-6) " ... three or more layers ... " and (column 9, line 27 to column 11, line 63) " ... forming succesively several protective layers on the stimulable phosphor layer ... ". Thus Kano *et al.* expressly teaches the use of multiple layers. Therefore, one of skill in the art is expressly directed to use multiple layers.

Applicant appears to be arguing (fourth paragraph on pg. 12 to first paragraph on pg. 19 of remarks filed 18 May 2007) that claims are allowable based on the same arguments previously presented. Examiner respectfully disagrees for the reasons discussed above.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SL

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